

## WHAT IS ROPE?

A **rope** is a length of fibres, twisted or braided together to improve strength, for pulling and connecting. Common materials for rope include **manila, hemp, hair, nylon, and steel**.

A. Fibres – B. Yarns – C. Strands – D. Rope



Other fibrous plant materials sometimes used include **cotton, linen, coconut-husk fibre (coir), jute, and sisal**. Other synthetic fibres in use include various forms of **polypropylene, polyethylene and polyester**. Some ropes are constructed of mixtures of several fibres.

Rope has been an essential tool since prehistoric times. Today, steel wire rope has largely supplanted fibre rope in heavy construction and industrial applications because of higher tensile strength. Fibre rope is still used extensively in light industry and in activities like sailing, climbing and Scouting.

In order to fasten ropes, a large number of knots are used. Some rope material, like hemp, is stronger when wet with water.

**Manila** hemp is a type of fibre obtained from the leaves of the Abaca, a relative of the banana. It is mostly used to make ropes and it is the most durable of the natural fibres. Other uses for manila fibre are coarse fabric and paper, including Manila envelopes and Manila papers.

**Hemp** is a common name for Cannabis and the name most used when this annual plant is grown for non-drug purposes.

**Sisal** or sisal hemp is an Agave that yields a stiff fibre used in making rope.

**Jute** is a long, soft, shiny plant fibre that can be spun into coarse, strong threads. It is produced from plants in the genus *Corchorus*.

**Coir** (from Malayalam *kayaru* - cord) is a coarse fibre extracted from the fibrous outer shell of a coconut.

**Nylon** is a synthetic polymer, a plastic, invented on February 28, 1935 by Wallace Carothers at DuPont of Wilmington, Delaware, USA. The material was announced in 1938, and the first nylon products were a nylon bristled toothbrush made with nylon yarn (on sale on February 24, 1938) and more famously, women's stockings (on sale on May 15, 1940).

**Steel** is a metal alloy whose major component is iron, with carbon being the primary alloying material.

**Cotton** is a soft fibre that grows around the seeds of the cotton plant, a shrub native to the tropical and subtropical regions of both the Old World and the New World. The fibre is most often spun into thread and used to make a soft, breathable textile.

**Linen** is a material made from the fibres of the flax (and historically, cannabis) plant.



Left - Hemp



Manila



Sisal



Coir



Variety of Rope

## Rope Making, the Beginning

*The art of rope making was one of the secret guilds of the Middle Ages. So successful were they in keeping their secrets that even today there is little written about the craft.*

### Some rope making techniques in order of complexity

The beginning of rope making is lost in prehistory, but there are evidences of rope being made as far back as 17,000 BC. These early ropes were twisted by hand or braided. The earliest indication of any type of mechanical advantage in making rope comes from early Egyptian evidence relating to the craft.

The Egyptians used a weighted rope tied to a stick to make rope. The rope to be made was tied to the weighted rope that was spun around the stick. The spinning imparted a twist to the strand. Three twisted strands would then be twisted together in the opposite direction. The idea that the ropes were made using a weighted rope came from inscriptions. In reality, this type of a system will not work. It is likely that the inscriptions were of a static material such as a weighted wooden dowel, paddle, etc. The dowels may have been carved to represent rope. A static method does work well, although it will not make long rope. This is very similar to the method used by the Southwest Indians in America about 1,000 AD.

In the Middle Ages (from the thirteenth century to the eighteenth century), from the British Isles to the Mediterranean, rope was made using a "rope walk" method. This allowed for long ropes of up to 300 yards long or longer to be made. Short ropes are useless on tall ships, which require ropes to be long, relatively uniform in diameter, and strong. Short ropes would require splicing to make them long. The strongest form of splicing is the short splice, which doubles the diameter of the rope at the area of the splice. This would cause problems in the rigging hardware such as buckles and pulleys.

The actual history of the rope making industry in medieval times is very scant, to say the least. One of the most comprehensive works on the history of rope, "**ROPE a history of the Hard Fibre Cordage Industry in the United Kingdom**", has very little to say about the craft during this time period. In 1393 we have a representation of the first stage of rope making - that of spinning the yarn-taken from the Mandelshes Portrait Buch in Nuremburg. So little difference from what was practiced for the next five hundred years in Europe is shown that this may serve as a text for a fairly full description of the art during the period indicated. The first real improvement in the craft came with an invention in 1792 called the Cordelier, invented by Edmund Cartwright, (1743–1823).

Finally, "Yarns, twines and ropes can be made by machine nowadays, but the rope makers of older days were accustomed to making all of these in a rope walk. The principal of the walk is that yarns are stretched out between revolving hooks, often 300 yards apart, and these hooks twist the yarns together...." The Navy required a minimum of 120 fathoms (720 feet), which was the minimum needed to anchor a ship.

### A ROPE WALK →



#### S or Left laid rope / Z or Right laid rope.

Standard rope is 3 stranded.

Four or more stranded rope requires a 'heart' in its centre.

Courtesy of <http://www.rope-maker.com>

